

=====

Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).

Reviewer: Anne Corrigan

Timestamp: [year=2008; month=1; day=30; hr=11; min=28; sec=17; ms=814;]

=====

Application No: 10597945

Version No: 3.0

Input Set:

Output Set:

Started: 2008-01-25 22:19:38.069

Finished: 2008-01-25 22:19:40.262

Elapsed: 0 hr(s) 0 min(s) 2 sec(s) 193 ms

Total Warnings: 19

Total Errors: 0

No. of SeqIDs Defined: 31

Actual SeqID Count: 31

| Error code | Error Description |
|------------|---|
| W 213 | Artificial or Unknown found in <213> in SEQ ID (12) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (13) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (14) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (15) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (16) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (17) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (18) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (19) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (20) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (21) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (22) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (23) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (24) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (25) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (26) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (27) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (28) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (29) |
| W 213 | Artificial or Unknown found in <213> in SEQ ID (30) |

SEQUENCE LISTING

<110> KWAK, Sang-Soo
KWON, Suk-Yoon
LEE, Haeng-Soon
RYU, Sun-Hwa

<120> MULTIPLE STRESS-INDUCIBLE PEROXIDASE PROMOTER DERIVED FROM
IPOMOEA BATATAS

<130> 58049-00035

<140> 10597945

<141> 2008-01-25

<160> 31

<170> PatentIn version 3.5

<210> 1

<211> 3945

<212> DNA

<213> Ipomoea batatas

<400> 1

| | |
|--|-----|
| cctcatggag tattctcata actctcttca gtatgaatga atcatacaat acaacgcagc | 60 |
| gacgaataga cttcgccctg aactagacat acgacaacat agccaccata cgggaaaggc | 120 |
| acttcaagct ctttatcccg taggctgcaa caacataacg acataacgac cactgggcaa | 180 |
| gggcatttac agccaccgt gggteaatac aggtcctcct cactcacttt agaaactaag | 240 |
| ggtttgaaaa catgatcttt ccttcagttt ttcttacaac aaatcattca ctttggacac | 300 |
| atttcacaat tgagtcacat acttaaaccg gctacttcat tagccctga aggattttaa | 360 |
| aaaaaacttt cactgcccgc aggtcttca aacatctttt cctcattatc aagtgaggca | 420 |
| ttttcctcaa aagtaagggt ttgacaacct ttatatcaaa atagcatacg tttttcaacg | 480 |
| taagtttcat aacatttact tgccatctca ccaactcgtc ttaaacaatc taggatattc | 540 |
| ttagatattc ttcatactca agtctcacac ttgaaatcaa tcaagactct tacactaaca | 600 |
| attcctcaat atacctcata atatcatctc tacttaaact agagagattt ccaactctca | 660 |
| attaatcacc aaaggtaact ctccaaatat ccaaattggaa ggtttcaact tccaaactaa | 720 |
| taccaaacca accggactaa tcataatcat attcataatc ataaattggt tctaactgcc | 780 |
| cctgtccaga aattacagtt ttgcgcagtc cgaaagattg agccggtaac aatagttccc | 840 |
| gaactctttt tcacttgaaa tttttatggt agaaccctaa cttatagtac ttgatatcca | 900 |
| taaaaagttt tggtcaccta gggtcacgaa ttaacacaga aaattacatc tttgcccttg | 960 |

| | |
|--|------|
| gcagtgggct gtcggaatt ctgtctctct ggaccagttt tggcaaaca ttttgaaacc | 1020 |
| acacttatac tactccaaaa attatgaaat ttttatggta gcttctacac ttatagaact | 1080 |
| acatgtataa aaaatattgg gtcaaaatac cttaccgatt tttcccaaatt attcacggaa | 1140 |
| cttactgcc a gaatctacc tgttttttcc tttcactatt ttcacaacta taagcatata | 1200 |
| tgggcataaa tatgacatga acatgcatga accaatgcag ggtgaaagta agattgaata | 1260 |
| tactgatact acaattaact aatgataaag tataactttt gtaaaaaatt tgattttttt | 1320 |
| ttttgatgaa ttcataact ccaaagattt tcctcattta attaaatttc tatcctcatg | 1380 |
| ttgaacccat taatcgaata attgacatat tagataaact tagccatcat atgacatttg | 1440 |
| atcatgattg atgattttta aaaaataaaa acaaaattat gaaagggtaa tgaaatattt | 1500 |
| taaaaaaatt atgtaaacc tgtaatctag taatctgtac aataataatt ttgtttcaac | 1560 |
| taagaggatg ttggcaaaag tataattaaa cttgtgatct tcgtacaata attatgcttc | 1620 |
| acgcactcaa ctagtcacat ctttccaggc aaaatttact tttctatgaa tatgagaagt | 1680 |
| tccatctatg gaaataacgg attattttatc taattttcaa attctatata tatagtctcg | 1740 |
| agtggaacaa aaatagaact aatttgaaca aatcaaagtc taagaaaata atacatgctt | 1800 |
| tagcagcaaa aataagaatg gtactatact taatcctcat catagtcttc aaccctgcat | 1860 |
| atagcacact taacatttta tattcaaata tactttaatt tagtcatgat aatacaactc | 1920 |
| acctactcca ttatagccga taatacaact cacctagcta ctccattata gtccaacaat | 1980 |
| atcaaatgaa taaaatagta atggtgactt aaagggtga atccaacata tattctgaca | 2040 |
| tttaaaaatg ctaacgtacg gttagattag tataatgaaa taaagttaat cattctctat | 2100 |
| atttgatgat ggtaattagt atcatggtaa ggtgttttat cgtggcagca tgagtgcag | 2160 |
| acaaacgcat atattattat taaaacaaaa tagtactcca atcataataa attatcttat | 2220 |
| attatattgc caacaattaa aaattcaaatt tagaacaatt taaatctcag tttgctttat | 2280 |
| tatattatta tcaacaataa taatttaata ctgatcgaag aactttccct ttcaagttct | 2340 |
| ctatttaagg aagcctgaga agccattaat cctcatcatc agctcgacca ctcatctctt | 2400 |
| cttcatactt cctttgctgt gataatcatc atcatggctt cctttgtcac tcggtcagc | 2460 |
| ctggccctta gcttcatcgc cctagcccta gctggcttct ccatttacca gaatacccat | 2520 |
| acagccatga aagggcagct taagctcacc ccaaagtggc tgctagacaa cactctagag | 2580 |
| tcgtcagtgg ccgacgtgct ctactacgc ctaggcatct cctccggcaa gctttccgac | 2640 |

| | |
|--|------|
| gaagactgca tattctccgc cgtaaaggaa gtggtggacg ccgccattga tgcagaaacc | 2700 |
| cgcatgggtg ctccctcat tcgcctcttc ttccatgact gctttgttga tgtacgtacg | 2760 |
| ctaattttgt acgatgatgt tttttttttt tttttttttt ttcccactgc attatattag | 2820 |
| gaaattaaac agattgaaat gtgtgttatt aatgtattat ctgcagggtt gtgacgcagg | 2880 |
| tcttctacta aacgatacac ctactttcac cggagaacag accgccggcg gcaataataa | 2940 |
| ctcagtcaga ggttttgagg tgatacaaca agctaaagag aatgtgataa ccaaattgcc | 3000 |
| ctacatacaa gtatcttggtg ccgacatctt atccattgct gcccgtgatt ctttccagag | 3060 |
| agtaagtcca tttatttcta aagggtgaaa ttaataagaa caagaatcca aacaaataac | 3120 |
| agacagtaaa aaaaaaagat ttatgtgggt tgacaatatg ttgaaattgt ttttatattt | 3180 |
| aatgactagt atttatgcat tatatttata tgcaactcta aacatgcagt ttactggaga | 3240 |
| aacgtacacc gtgactctgg gaagactcga tgcaagaacg gcgaacctta ccggagctaa | 3300 |
| caccaactc gtcggacca aacgaggaatt ggcacgcaa gtcgagaaat ttgcggcgaa | 3360 |
| agggttctcc gaaacggagc tagtcgcctt gttaggtgtt cacacggttg ggttttcgag | 3420 |
| atgtccgctt ttatgcgttc ccattttcat caatcccgcc cgggcctcca cgctgcaatg | 3480 |
| caactgtccg gtgagtcctg acgacaccgg gctggtgggc ctggaccca ctccgttgac | 3540 |
| gtgggaccaa agtttttact ccgacgtggc taacggacaa gggcttctgt tctccgacaa | 3600 |
| cgagctgatg aatagcaaca ccaccagcgc cgccttagg aggtacagg acgagatgga | 3660 |
| cgcttttctc gccgatttcg ccgcgcctat ggtgaagatg agcctcctgc cgccgtcccc | 3720 |
| cggagtggag ctcgaaatcc gagaggtttg cagcgagggtg aatgccaaca cagttgcatc | 3780 |
| catgtgaagt tcgttcccat cgacatcaat aacgtctgtg attctgtgaa agttttactc | 3840 |
| ggactgtgaa gaattttcac tttctgttgt ttctgaaata aaaaagattt tttttttatg | 3900 |
| tcctaacaaa acttgtatta ctgaataaaa tttataaatt tgtaa | 3945 |

<210> 2

<211> 110

<212> DNA

<213> Ipomoea batatas

<400> 2

| | |
|--|----|
| tttccctttc aagttctcta ttttaaggaag cctgagaagc cattaatcct catcatcagc | 60 |
|--|----|

| | |
|---|-----|
| tcgaccactc atttcttctt catacttcct ttgtgtgat aatcatcatc | 110 |
|---|-----|

<210> 3

<211> 177
 <212> DNA
 <213> Ipomoea batatas

<400> 3
 aaattaaatc tcagtttgct ttattatatt attatcaaca ataataattt aatactgatc 60
 gaagaacttt ccccttcaag ttctctatct aaggaagcct gagaagccat taatcctcat 120
 catcagctcg accactcatt tcttcttcat acttcctttg ctgtgataat catcatc 177

<210> 4
 <211> 306
 <212> DNA
 <213> Ipomoea batatas

<400> 4
 taagggtgtt tatcgtggca gcatgagtgc atgacaaacg catatattat tattaaaaca 60
 aaatagtact ccaatcataa taaattatct tatattatat tgccaacaat taaaaattca 120
 aattagaaca aattaaatct cagtttgctt tattatatta ttatcaacaa taataattta 180
 atactgatcg aagaactttc cctttcaagt tctctattta aggaagcctg agaagccatt 240
 aatcctcatc atcagctcga ccaactcattt cttcttcata cttcctttgc tgtgataatc 300
 atcatc 306

<210> 5
 <211> 306
 <212> DNA
 <213> Ipomoea batatas

<400> 5
 taagggtgtt tatcgtggca gcatgagtgc atgacaaacg catatattat tattaaaaca 60
 aaatagtact ccaatcataa taaattatct tatattatat tgccaacaat taaaaattca 120
 aattagaaca aattaaatct cagtttgctt tattatatta ttatcaacaa taataattta 180
 atactgatcg aagaactttc cctttcaagt tctctattta aggaagcctg agaagccatt 240
 aatcctcatc atcagctcga ccaactcattt cttcttcata cttcctttgc tgtgataatc 300
 atcatc 306

<210> 6
 <211> 433
 <212> DNA
 <213> Ipomoea batatas

<400> 6
 atggtgactt aaagggtga atccaacata tattctgaca tttaaaaatg ctaacgtacg 60

| | |
|---|-----|
| gtagattag tataatgaaa taaagttaat cattctctat atttgatgat ggtaattagt | 120 |
| atcatggtaa ggtgttttat cgtggcagca tgagtgcacg acaaacgcat atattattat | 180 |
| taaaacaaaa tagtactcca atcataataa attatcttat attatattgc caacaattaa | 240 |
| aaattcaaat tagaacaat taaatctcag tttgctttat tatattatta tcaacaataa | 300 |
| taatttaata ctgatcgaag aactttccct ttcaagttct ctatttaagg aagcctgaga | 360 |
| agccattaat cctcatcatc agctcgacca ctcatctctt cttcatactt cctttgctgt | 420 |
| gataatcatc atc | 433 |

<210> 7
 <211> 818
 <212> DNA
 <213> Ipomoea batatas

| | |
|--|-----|
| <400> 7 gcttcacgca ctcaactagt cacatctttc caggcaaaat ttacttttct atgaatatga | 60 |
| gaagttccat ctatggaaat aacggattat ttatctaatt ttcaaattct atatatatag | 120 |
| tctcgagtgg aacaaaaata gaactaattt gaacaaatca aagtctaaga aaataataca | 180 |
| tgcttttagca gcaaaaaataa gaatggtagt atacttaatc ctcatcatag tcttcaaccc | 240 |
| tgcatatagc acacttaaca ttttatattc aaatatactt taatttagtc atgataatac | 300 |
| aactcaccta ctccattata gccgataata caactcacct agctactcca ttatagtcca | 360 |
| acaatatcaa atgaataaaa tagtaatggg gacttaaagg gctgaatcca acatatattc | 420 |
| tgacatttaa aaatgctaac gtacggtagt attagtataa tgaaataaag ttaatcattc | 480 |
| tctatatttg atgatggtaa ttagtatcat ggtaagggtgt tttatcgtgg cagcatgagt | 540 |
| gcatgacaaa cgcatatatt attattaaaa caaaatagta ctccaatcat aataaattat | 600 |
| cttatattat attgccaca attaaaaatt caaattagaa caaattaaat ctgagtttgc | 660 |
| tttattatat tattatcaac aataataatt taatactgat cgaagaactt tccctttcaa | 720 |
| gttctctatt taaggaagcc tgagaagcca ttaatcctca tcatcagctc gaccactcat | 780 |
| ttctttttca tacttccttt gctgtgataa tcatcatc | 818 |

<210> 8
 <211> 1199
 <212> DNA
 <213> Ipomoea batatas

<400> 8

| | |
|--|------|
| atgcaggggtg aaagtaagat tgaatatact gatactacaa ttaactaatg ataaagtata | 60 |
| actttttgtaa aaaatttgat tttttttttt gatgaattca tatactccaa agatttttcct | 120 |
| catttaatta aatttctatc ctcatgttga acccattaat cgaataattg acatattaga | 180 |
| taaacttagc catcatatga catttgatca tgattgatga tttttaaaaa ataaaaacaa | 240 |
| aattatgaaa gggtaatgaa atatttttaa aaaattatgt aaaccctgta atctagtaat | 300 |
| ctgtacaata ataattttgt ttcaactaag aggatgttgg caaaagtata attaaacttg | 360 |
| tgatcttcgt acaataatta tgcttcacgc actcaactag tcacatcttt ccaggcaaaa | 420 |
| tttacttttc tatgaatatg agaagttcca tctatggaaa taacggatta tttatctaata | 480 |
| tttcaaattc tatatatata gtctcgagtg gaacaaaaat agaactaatt tgaacaaatc | 540 |
| aaagtctaag aaaataatac atgcttttagc agcaaaaaata agaatggtac tataacttaat | 600 |
| cctcatcata gtcttcaacc ctgcatatag cacacttaac attttatatt caaatatact | 660 |
| ttaatttagt catgataata caactcacct actccattat agccgataat acaactcacc | 720 |
| tagctactcc attatagtcc aacaatatca aatgaataaa atagtaatgg tgacttaaag | 780 |
| ggctgaatcc aacatatatt ctgacattta aaaatgctaa cgtacggtta gattagtata | 840 |
| atgaaataaa gttaatcatt ctctatatatt gatgatggta attagtatca tggtaagggtg | 900 |
| ttttatcgtg gcagcatgag tgcatgacaa acgcatatat tattattaaa acaaaatagt | 960 |
| actccaatca taataaatta tcttatatta tattgccaac aattaaaaat tcaaattaga | 1020 |
| acaaattaaa tctcagtttg ctttattata ttattatcaa caataataat ttaatactga | 1080 |
| tcgaagaact ttccctttca agttctctat ttaaggaagc ctgagaagcc attaatctc | 1140 |
| atcatcagct cgaccactca tttctttctt atacttcctt tgctgtgata atcatcatc | 1199 |

<210> 9

<211> 1467

<212> DNA

<213> Ipomoea batatas

<400> 9

| | |
|---|-----|
| ggctgtccgg aattctgtct ctctggacca gttttggcaa acaattttga aaccacactt | 60 |
| atactactcc aaaaattatg aaatttttat ggtagcttct acacttatag aactacatgt | 120 |
| ataaaaaata ttgggtcaaa ataccttacc gatttttccc aaatattcac ggaacttact | 180 |
| gccagaatct accctgcttt ttcccttcac tattttcaca actataagca tatatgggca | 240 |
| taaatatgac atgaacatgc atgaaccaat gcagggtgaa agtaagattg aatatactga | 300 |

| | |
|--|------|
| tactacaatt aactaatgat aaagtataac ttttgtaaaa aatttgattt ttttttttga | 360 |
| tgaattcata tactccaaag attttcctca ttttaattaaa tttctatcct catggtgaac | 420 |
| ccattaatcg aataattgac atattagata aacttagcca tcatatgaca tttgatcatg | 480 |
| attgatgatt tttaaaaaat aaaaacaaaa ttatgaaagg gtaatgaaat attttaaaaa | 540 |
| aattatgtaa accctgtaat ctagtaatct gtacaataat aattttgttt caactaagag | 600 |
| gatgttgga aaagtataat taaacttggtg atcttcgtac aataattatg cttcacgcac | 660 |
| tcaactagtc acatctttcc aggcaaaatt tacttttcta tgaatatgag aagttccatc | 720 |
| tatggaaata acggattatt tatctaattt tcaaattcta tatatatagt ctcgagtga | 780 |
| acaaaaatag aactaatttg aacaaatcaa agtctaagaa aataatacat gcttttagcag | 840 |
| caaaaataag aatggtacta tacttaatcc tcatcatagt cttcaaccct gcatatagca | 900 |
| cacttaacat tttatattca aatatacttt aatttagtca tgataataca actcacctac | 960 |
| tccattatag ccgataatac aactcaccta gctactccat tatagtccaa caatatcaaa | 1020 |
| tgaataaaat agtaatggtg acttaaaggg ctgaatccaa catatatctt gacatttaaa | 1080 |
| aatgctaacg tacggttaga ttagtataat gaaataaagt taatcattct ctatatttga | 1140 |
| tgatggtaat tagtatcatg gtaagggtgt ttatcgtggc agcatgagtg catgacaaac | 1200 |
| gcatatatta ttattaaaac aaaatagtac tccaatcata ataaattatc ttatattata | 1260 |
| ttgccaacaa ttaaaaattc aaattagaac aaattaaatc tcagtttgct ttattatatt | 1320 |
| attatcaaca ataataattt aatactgac gaagaacttt ccctttcaag ttctctattt | 1380 |
| aaggaagcct gagaagccat taatcctcat catcagctcg accactcatt tcttcttcat | 1440 |
| acttcctttg ctgtgataat catcatc | 1467 |

<210> 10

<211> 1934

<212> DNA

<213> Ipomoea batatas

<400> 10

| | |
|---|-----|
| ttgccatctc accacttcgt cttaaacaat ctaggatatt cttagatatt cttcatactc | 60 |
| aagtctcaca cttgaaatca atcaagactc ttacactaac aattcctcaa tatacctcat | 120 |
| aatatcatct ctacttaaac tagagagatt tccaactctc aattaatcac caaaggtaac | 180 |
| tctccaaata tccaaatgga aggtttcaac ttccaaacta ataccaaacc aaccggacta | 240 |
| atcataatca tattcataat cataaattgt ttctaactgc ccctgtccag aaattacagt | 300 |

| | |
|---|------|
| tttgcgcagt cggaaagatt gagccggtaa caatagttcc cgaactcttt ttcacttgaa | 360 |
| atTTTTatgg tagaacccta acttatagta cttgatatcc ataaaaagtt ttggtcacct | 420 |
| aggttcacga attaacacag aaaattacat ctttgcctt ggccagtgggc tgtccggaat | 480 |
| tctgtctctc tggaccagtt ttggcaaaca attttgaaac cacacttata ctactccaaa | 540 |
| aattatgaaa tttttatggt agcttctaca cttatagaac tacatgtata aaaaatattg | 600 |
| ggTcaaaata ccttaccgat ttttccaaa tattcacgga acttactgcc agaactctacc | 660 |
| ctgctttttc ctttcactat tttcacaact ataagcatat atgggcataa atatgacatg | 720 |
| aacatgcatg aaccaatgca gggTgaaagt aagattgaat atactgatac tacaattaac | 780 |
| taatgataaa gtataacttt tgtaaaaaat ttgatttttt tttttgatga attcatatac | 840 |
| tccaaagatt ttctcatctt aattaaattt ctatcctcat gttgaaccca ttaatcgaat | 900 |
| aattgacata ttagataaac ttagccatca tatgacattt gatcatgatt gatgattttt | 960 |
| aaaaaataaa aacaaaatta tgaaagggta atgaaatatt ttaaaaaaat tatgtaaacc | 1020 |
| ctgtaatcta gtaatctgta caataataat tttgtttcaa ctaagaggat gttggcaaaa | 1080 |
| gtataattaa acttgtgatc ttcgtacaat aattatgctt cacgcactca actagtcaca | 1140 |
| tctttccagg caaaatttac ttttctatga atatgagaag ttccatctat ggaaataacg | 1200 |
| gattatttat ctaattttca aattctatat atatagtctc gagtggaaca aaaatagaac | 1260 |
| taatttgaac aaatcaaagt ctaagaaaat aatacatgct ttagcagcaa aaataagaat | 1320 |
| ggTactatac ttaatcctca tcatagtctt caaccctgca tatagcacac ttaacatttt | 1380 |
| atattcaaat atactttaat ttagtcatga taatacaact cacctactcc attatagccg | 1440 |
| ataatacaac tcacctagct actccattat agtccaacaa tatcaaatga ataaaatagt | 1500 |
| aatggTgact taaagggctg aatccaacat atattctgac atttaaaaaat gctaacgtac | 1560 |
| ggTtagatta gtataatgaa ataaagttaa tcattctcta tatttgatga tggtaattag | 1620 |
| tatcatggta aggtgtttta tcgtggcagc atgagtgcac gacaaacgca tatattatta | 1680 |
| ttaaaacaaa atagtactcc aatcataata aattatctta tattatattg ccaacaatta | 1740 |
| aaaattcaaa ttagaacaaa ttaaattctca gtttgcttta ttatattatt atcaacaata | 1800 |
| ataattttaat actgatcgaa gaactttccc tttcaagttc tctattttaag gaagcctgag | 1860 |
| aagccattaa tcctcatcat cagctcgacc actcatttct tcttcatact tcctttgctg | 1920 |
| tgataatcat catc | 1934 |

<210> 11
<211> 2433
<212> DNA
<213> Ipomoea batatas

<400> 11
cctcatggag tattctcata actctcttca gtatgaatga atcatacaat acaacgcagc 60
gacgaataga cttcgccctg aactagacat acgacaacat agccaccata cgggaaaggc 120
acttcaagct ctttatcccg taggctgcaa caacataacg acataacgac cactgggcaa 180
gggcatttac agccaccctg gggatcaatca aggtcctcct cactcacttt agaaactaag 240
ggtttgaaaa catgatcttt ccttcagttt ttcttacaac aaatcattca ctttggacac 300
atttcacaat tgagtccaat acttaaaccg gctacttcat tagccctga aggattttta 360
aaaaaacttt cactgcccgc aggtcttca aacatctttt cctcattatc aagtgaggca 420
ttttcctcaa aagtaagggt ttgacaacct ttatatcaaa atagcatacg tttttcaacg 480
taagtttcat aacatttact tgccatctca ccacttcgtc ttaaacaatc taggatattc 540
ttagatattc ttcatactca agtctcacac ttgaaatcaa tcaagactct tacactaaca 600
attcctcaat atacctcata atatcatctc tactttaaact agagagattt ccaactctca 660
attaatcacc aaaggtaact ctccaaatat ccaaatggaa ggtttcaact tccaaactaa 720
taccaaacca accggactaa tcataatcat attcataatc ataaattggt tctaactgcc 780
cctgtccaga aattacagtt ttgcgcagtc cgaaagattg agccggtaac aatagttccc 840
gaactctttt tcacttgaaa tttttatggg agaaccctaa cttatagtac ttgatatcca 900
taaaaagttt tggtcaccta gggtcacgaa ttaacacaga aaattacatc tttgcccttg 960
gcagtgggct gtccggaatt ctgtctctct ggaccagttt tggcaaacaa ttttgaaacc 1020
acacttatac tactccaaaa attatgaaat ttttatggta gcttctacac ttatagaact 1080
acatgtataa aaaatattgg gtcaaaatac cttaccgatt tttcccaaat attcacggaa 1140
cttactgcc aatctaccc tgctttttcc tttcactatt ttcacaacta taagcatata 1200
tgggcataaa tatgacatga acatgcatga accaatgcag ggtgaaagta agattgaata 1260
tactgatact acaattaact aatgataaag tataactttt gtaaaaaatt tgattttttt 1320
ttttgatgaa ttcataact ccaaagattt tcctcattta attaaatttc tctctcatg 1380
ttgaacccat taatcgaata attgacatat tagataaact tagccatcat atgacatttg 1440
atcatgattg atgattttta aaaaataaaa acaaaattat gaaagggtta tgaaatat 1500
taaaaaaatt atgtaaacc tgtaatctag taatctgtac aataataatt ttgtttcaac 1560

| | |
|---|------|
| taagaggatg ttggcaaaag tataattaa cttgtgatct tcgtacaata attatgcttc | 1620 |
| acgcactcaa ctagtcacat cttccaggc aaaatttact tttctatgaa tatgagaagt | 1680 |
| tccatctatg gaaataacgg attatttatt taattttcaa attctatata tatagtctcg | 1740 |
| agtggaacaa aaatagaact aatttgaaca aatcaaagtc taagaaaata atacatgctt | 180 |